

Appl. No. 10/027,751
Resp. dated Sep. 18, 2003
Reply to Office Action of 06/25/2003

REMARKS/ARGUMENTS

Claims 1-32 are pending and remain in this application. Claims 1-5, 14-19, and 21-32 are rejected. Claims 6-13 and 20 are objected to. Reconsideration is respectfully requested.

The Examiner rejected Claims 1-5, 14-19, and 21-32 under 35 U.S.C. 102(e) as being anticipated by Kapetanic et al. (USPN 6,529,844). Regarding Claim 1, the Examiner contended that Kapetanic et al. teach a method of extending dynamic range of a test system that has a receiver channel comprising compensating for an effect that compression of the receiver channel has on a magnitude response and a phase response of the receiver channel. In support of the contention, the Examiner pointed to col. 8, lines 1-7, of Kapetanic et al., USPN 6,529,844 (hereinafter Kapetanic et al.). Applicant respectfully traverses this rejection.

Applicant disagrees with the Examiner's interpretation of and contentions regarding the teachings of Kapetanic et al. Kapetanic et al. disclose a vector network analyzer (VNA) with three test ports and an integration of hardware and software to make an integrated set of measurements for two and three port devices. Further, the VNA disclosed by Kapetanic et al. has two signal sources along with a software configuration that enable the VNA to operate in a non-ratioed mode for measuring second and third intercepts of a device under test (DUT) and to make frequency translation measurements of mixers including frequency translation group delay measurements.

However, Kapetanic et al. do not disclose or suggest "a method of extending dynamic range of a test system that has a receiver channel", as claimed in Applicant's Claim 1. In fact, Kapetanic et al. are silent on test system dynamic range. Moreover, Kapetanic et al. not only fail to disclose but also fail to suggest "compensating for an effect that compression of the receiver channel has on a magnitude response and a phase response of the receiver channel", as recited in Claim 1 of the instant patent application.

In particular, at col. 8, lines 1-7, relied upon by the Examiner in the rejection of Claim 1, Kapetanic et al. disclose compensating for a *phase inversion* in the mixing process using phase flips (*emphasis added*). Clearly, compensating for *phase inversion* is *not* the same as "compensating for an effect that compression of the

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receiver channel has on a magnitude response and a phase response of the receiver channel", as claimed in Claim 1. Moreover, even when considering the whole disclosure of Kapetanic et al., nowhere is there found any discussion or suggestion of such "a method of extending dynamic range of a test system ...", as claimed in Applicant's Claim 1.

In fact, the only mention of 'dynamic range' in Kapetanic et al. is with regard to DUT dynamic range and a need for producing accurate measurements of DUTs having wide dynamic range (e.g., col. 3, line 20, and col. 4, lines 16-19). As employed in Kapetanic et al., DUT dynamic range is unrelated to test system dynamic range.

Furthermore, the only mention of compression or compression effects by Kapetanic et al. is with regard to measuring distortion effects such as second-order and third order products of DUTs (e.g., Fig 6 and col. 3, line 40 as well as col. 7, line 55). Clearly, Kapetanic et al. do not address and are not concerned with test system receiver channel compression or an effect that such a test system compression has on data generated for a DUT.

In short, Kapetanic et al. are simply not concerned with, and moreover do not disclose, "compensating for an effect that compression of the receiver channel has on a magnitude response and a phase response of the receiver channel", as recited in Applicant's Claim 1. Moreover, Kapetanic et al. are simply not concerned with, and do not disclose, "a method of extending dynamic range of the test system that has a receiver channel comprising ..." such "compensating ...", as recited in Claim 1 of the instant application for patent.

Regarding Claim 16, the Examiner contended that Kapetanic et al. teach a method of extending dynamic range of a test system comprising characterizing a reference receiver channel of the test system for a reference magnitude compression response and a reference phase compression response; characterizing a second receiver channel of the test system for a second magnitude compression response and a second phase compression response; and compensating for an effect that compression of one or both of the reference channel and the second channel has on measured magnitude data and measured phase data. To support the contention, the

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Examiner relied on Figure 2 and col. 2, lines 15-19, of Kapetanic et al. Applicant respectfully traverses this rejection.

Again, Applicant disagrees with the Examiner's interpretation of and contentions regarding the teachings of Kapetanic et al. In particular, Figure 2 relied upon by the Examiner, illustrates a VNA having a noise source that may be connected to a DUT to enable a noise figure measurement on the DUT by the VNA. Furthermore, at col. 2, lines 15-19, Kapetanic et al. disclose operating the VNA in a non-ratioed mode and using a receiver of the VNA to measure power with respect to making the noise figure measurement. Additionally, Kapetanic et al. mention that when operated in the non-ratioed mode, the user cannot usually apply vector corrections using the VNA to compensate for DUT or system mismatches when the noise figure measurements are being made.

As discussed hereinabove, nowhere in Kapetanic et al. is there disclosed or suggested "a method of extending dynamic range of a test system", as claimed in Applicant's Claim 16. Moreover, in neither in Figure 2 nor at col. 2, lines 15-19, do Kapetanic et al. disclose or suggest "characterizing a reference receiver channel ..."; "characterizing a second receiver channel of the test system ..."; and "compensating for an effect that compression of one or both of the reference channel and the second channel has on measured magnitude data and measured phase data", as recited in Claim 16 of the instant application. As a matter of fact, nowhere else in the disclosure of Kapetanic et al. is there discussed or suggested any of such "characterizing..." and/or "compensating ...", as recited in Applicant's Claim 16.

Regarding Claim 27, the Examiner contended that Kapetanic et al. teach a test system having extended dynamic range comprising a receiver channel; a controller that processes magnitude data and phase data generated by the receiver channel; and a computer program stored in memory, the computer program being executed by the controller, the computer program implementing instructions that compensate for an effect on the generated data caused by the receiver channel being compressed. To support the contention, the Examiner relied upon Figure 2, Figure 3, Figure 7 reference number 764, and col. 2, lines 50-55 of Kapetanic et al.

Figure 2 is discussed hereinabove. Figure 3 illustrates an external automatic calibration of a VNA that uses an external calibration device (i.e., a switched short,

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open, load, thru calibration standard). Figure 7 illustrates a three-port measurement system according to Kapetanic et al. Specifically, reference number 764 refers to a processor internal to the VNA that controls various functions thereof. Furthermore, at col. 2, lines 50-55, Kapetanic et al. disclose a controller that functions as a user sending information to the VNA's processor to set up and run each calibration step after each calibration component is connected by internal switches in the automatic calibration device to the terminals of the VNA.

Nowhere in the figures or sections of Kapetanic et al. relied upon by the Examiner, nor in any other figure or section of Kapetanic et al., is there a disclosure of "a test system having extended dynamic range", as claimed in Applicant's Claim 27. Furthermore, nowhere in Kapetanic et al. is there disclosed or suggested that "a test system ..." comprises "... a computer program ... the computer program implementing instructions that compensate for an effect on the generated data caused by the receiver channel being compressed, as recited in Claim 27 of the instant application for patent.

Thus, for at least the reasons set forth hereinabove with respect to Claims 1 and 16, Kapetanic et al. neither explicitly nor implicitly disclose a "method of extending dynamic range of a test system ...", as recited in Claims 1 and 16. Furthermore, for at least the reasons set forth hereinabove with respect to Claim 27, Kapetanic et al. neither explicitly nor implicitly disclose a "test system having extended dynamic range ...", as recited in Claim 27.

In order to maintain an anticipation rejection, the "trier of fact must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify corresponding elements disclosed in the allegedly anticipating reference." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ at 485 (Fed. Cir. 1984). Moreover as stated by the Federal Circuit, "there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripts Clinic & Research Found. V. Genentech Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991). In particular with respect to establishing *prima facie* anticipation, the Federal Circuit has stated that "anticipation requires the disclosure in a single prior art reference each element of the claim under

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consideration". *W.L. Gore & Associates v. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). In addition, each element disclosed by the reference must be "arranged as in the claim". *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, *supra*, at 481, 485. Furthermore, while it is permissible in some instances to rely on an inherent characteristic of a device or process to provide a minor aspect of the claimed invention, "inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient". *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA. 1981). Moreover, "if the examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of patent". *In re Oelrich*, 977, F.2d 1443, 24 USPQ 2d 1443 (Fed. Cir. 1992).

As discussed hereinabove, Kapetanic et al. at least fail to disclose compensating for an effect that compression of the receiver channel has on a magnitude response and a phase response of the receiver channel, as recited in Claim 1; characterizing a reference receiver channel and/or a second receiver channel for a magnitude compression response and a phase compression response and compensating for an effect of that compression, as recited in Claim 16; or compensating for an effect on generated data caused by the receiver channel being compressed, as recited in Claim 27. As such, Kapetanic et al. fail to disclose each element in the claim(s) under consideration with regards to base Claims 1, 16, and 27. Applicant respectfully submits that the Examiner has failed to establish *prima facie* anticipation by Kapetanic et al. of Claims 1, 16, and 27. Having failed to establish *prima facie* anticipation by Kapetanic et al., base Claims 1, 16, and 27 are allowable over Kapetanic et al. for at least the reasons set forth hereinabove.

Rejected Claims 2-5, and 14-15 ultimately depend from and include all of the limitations of base Claim 1. Rejected Claims 17-19 and 21-26 ultimately depend from and include all of the limitations of base Claim 16. Rejected Claims 28-32 ultimately depend from and include all of the limitations of base Claim 27. As such, Claims 2-5, 14-15, 17-19, 21-26, and 28-32 are not anticipated by Kapetanic et al. for at least the same reasons that respective base Claims 1, 16 and 27 are not anticipated thereby. Applicant respectfully requests that the Examiner reconsider and withdraw

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the rejection of Claims 1-5, 14-19, and 21-32 under 35 U.S.C. 102(e) as being anticipated by Kapetanic et al.

The Examiner objected to Claims 6-13 and 20 as being dependent from rejected base Claims 1 and 16, respectively. However, the Examiner observed that Claims 6-13 and 20 would be allowable if rewritten in independent form including the limitations of the base claims and any intervening claims.

Applicant appreciates the Examiner's acknowledgement of allowable subject matter in Claims 6-13 and 20. However, Applicant has identified above the reasons why base Claims 1 and 16 are allowable over the cited art. Therefore, it is submitted that Claims 6-13 and 20 are dependent from allowable base claims and are therefore allowable as originally written. Reconsideration and withdrawal of the objection of Claims 6-13 and 20 are respectfully requested.

In summary, Claims 1-32 are pending. Claims 1-5, 14-19, and 21-32 were rejected. Claims 6-13 and 20 were objected to. As detailed hereinabove, Applicant believes original Claims 1-32 are in condition for allowance. It is respectfully requested that Claims 1-32 be allowed, and that the application be passed to issue at an early date.

Should the Examiner have any questions regarding the above, please contact the undersigned, J. Michael Johnson, telephone number (775) 849-3085, or John L. Imperato, Attorney for Applicant, Registration No. 40,026 at Agilent Technologies, Inc., telephone number (650) 485-5511.

Respectfully submitted,

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J. Michael Johnson

9/18/03

Date

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